REMARKS/ARGUMENTS

In the Office Action mailed January 7, 2010, claims 1-13 were rejected. In response, Applicants hereby request reconsideration of the application in view of the below-provided remarks. No claims are amended, added, or canceled.

Withdrawal of Finality

As a preliminary matter, Applicants respectfully note that the finality of the present Office Action is premature and should be withdrawn. The finality is premature because the Office Action includes new grounds of rejection which were not necessitated by Applicants' previous amendments, despite the Examiner's assertion.

1. The new ground of rejection under 35 U.S.C. 112, second paragraph, was not necessitated by Applicants' amendments.

Specifically, the present Office Action includes a rejection of claim 1 under 35 U.S.C. 112, second paragraph, as purportedly being indefinite based on the language "phase mixing" recited in the claim. However, Applicants' previous amendments did not relate to or otherwise affect the indicated language in any way. In fact, the only amendment that was presented within the clause containing the indicated language was to correct antecedent basis of "the superframe" recited prior to the indicated language. For reference, a copy of this amendment is provided as follows:

> "wherein for the n_{frc} frames of ~~a~~ the superframe the grey scales are generated by using phase mixing, defining which phase of grey scale coding is used for a certain frame,"
>
> Applicants' Amendment, 8/6/09 (strikethrough and underlining in original).

Thus, it can be seen that Applicants' previous amendment did not in any way necessitate the new ground of rejection under 35 U.S.C. 112, second paragraph, because Applicants' amendment did not alter the language indicated in the new ground of rejection. Therefore, the finality of the present Office Action is premature and should be withdrawn because the new ground of rejection under 35 U.S.C. 112, second paragraph, was not necessitated by Applicants' previous amendments.

2. The new ground of rejection under 35 U.S.C. 103 was not necessitated by Applicants' amendments.

Moreover, as a separate basis for withdrawal of the finality of the present Office Action, Applicants note that the reasoning presented in the current Office Action for the rejection of claim 1 under 35 U.S.C. 103 is new reasoning that was not presented in the previous Office Action. In fact, the reasoning in the previous Office Action failed to acknowledge the indicated language of the claim and, hence, failed to establish a *prima facie* case of obviousness. Thus, Applicants' further submit that the new reasoning presented in support of the rejection of claim 1 under 35 U.S.C. 103 should also be considered a new ground of rejection because such reasoning was not presented in the previous Office Action.

Consequently, this is the first chance that Applicants have to respond to the stated rejection. Furthermore, the new ground of rejection under 35 U.S.C. 103 was not necessitated by Applicants' previous amendments, but rather it appears to have been necessitated by the Examiner's oversight in the previous Office Action. Applicants should not be penalized with finality of the present Office Action because of the Examiner's oversight in failing to fully address the language of the claim in the previous Office Action. Therefore, the finality of the present Office Action is premature and should be withdrawn because the new ground of rejection under 35 U.S.C. 103 was not necessitated by Applicants' previous amendments.

Claim Rejections under 35 U.S.C. 112

Claim 1 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner requests clarification of the language "phase mixing" recited in claim 1.

Applicants respectfully note that there is ample description of embodiments of "phase mixing" presented in the specification of the present application. For reference, Applicants direct the Examiner to the description available at page 5, line 3, through page 7, line 12. For brevity, the cited portion of the present application will not be duplicated

herein. However, it should be noted that phase mixing generally refers to generating grey scales in adjacent pixels using different patterns or sequences of pixel states. See, page 5, lines 3-6. Additionally, it should be noted that a specific example is provided at page 6, line 18, through page 7, line 12. Additional portions of the specification provide additional details regarding embodiments of phase mixing. Therefore, a careful review of this and other portions of the originally filed specification should satisfy the Examiner with a proper and sufficiently thorough understanding of embodiments of the "phase mixing" recited in the claim.

Furthermore, it should be noted that, in light of the ample contextual description provided in the present application, it is improper for the Examiner to suggest a substitute interpretation of "phase mixing" that is inconsistent with the described embodiments. Specifically, the Examiner states the following:

> To further advance prosecution, the Exmainer interprets "...***phase mixing*** ..." as the PWM having different durations (i.e. different rising and/or falling edges) corresponding to predetermined grayscale values.
> Office Action, 1/7/10 (emphasis in original).

Despite the Examiner's suggested interpretation, there is nothing in the specification to substantiate this asserted interpretation. Rather, the description provided in the present application describes embodiments which do not involve "PWM [signals] having different durations corresponding to predetermined grayscale values." Therefore, the Examiner's asserted interpretation is improper because it is inapposite and unrelated to the actual embodiments described in the specification.

Furthermore, it should be noted that using an interpretation, as suggested by the Examiner, that is inconsistent with the actual description of the present application does not further advance prosecution because such an approach merely confuses the language of the claim with unintended and improper interpretations. Assuming that the objective of prosecution is to give a fair examination of the language of the claim, consistent with the description provided in the accompanying specification, then using an inconsistent interpretation that is not supported by the actual description of the specification does not advance prosecution because such an approach would unfairly discriminate against the claims based on the whims and arbitrary interpretations suggested by the Examiner.

Therefore, Applicants respectfully submit that the Examiner's approach and suggested interpretation does not advance prosecution, but merely attempts to disregard the actual language of the claims and the specification of the present application.

Claim Rejections under 35 U.S.C. 103

Claims 1-13 were rejected based on one or more cited references. The cited reference(s) relied on in these rejections include:

Scheffer et al. (U.S. Pat. No. 5,485,173, hereinafter Scheffer)
Kobayashi (U.S. Pat. No. 6,927,785, hereinafter Kobayashi)
Okamoto (U.S. Pat. No. 6,094,184, hereinafter Okamoto)

In particular, claims 1-9 and 13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Scheffer in view of Kobayashi. Claims 10-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Scheffer in view of Kobayashi and further in view of Okamoto. However, Applicants respectfully submit that these claims are patentable over Scheffer, Kobayashi, and Okamoto for the reasons provided below.

Independent Claim 1

Claim 1 is patentable over the combination of Scheffer and Kobayashi because the combination of cited references does not teach all of the limitations of the claim. Claim 1 recites:

> Display device comprising:
> a liquid crystal material between a first substrate provided with row electrodes and a second substrate provided with column electrodes, in which overlapping parts of the row and column electrodes define pixels;
> driving means for driving the column electrodes in conformity with an image to be displayed, wherein column voltages $G_j(t)$ are supplyable to the column electrodes, wherein the column voltages $G_j(t)$ to be supplied are selectable from a predetermined number of column voltages levels; and
> driving means for driving the row electrodes, wherein the row electrodes supply groups of p rows (p>=1) with mutually orthogonal selection signals for driving pixels and the groups of p rows are driven for

the duration of a row selection time p x n_{frc} during a superframe including n_{frc} frames for generating grey scales,

wherein the row selection time is subdivided in n_{pwm} sub selection time slots and the grey scales are coded in grey scale tables having n_{frc} phases with n_{pwm} sub selection time slots,

wherein for the n_{frc} frames of the superframe the grey scales are generated by using phase mixing, defining which phase of grey scale coding is used for a certain frame,

wherein a column voltage $G_j(t)$ is calculated depending on the grey scales to be displayed by the p concurrently driven pixels in a column and depending on the used mutually orthogonal selection signals F_i for the corresponding group of rows,

wherein a change in the column voltage level is defining a transition, and

wherein the column voltage $G_j(t)$ to be supplied to a column electrode has always less transitions per row selection time than the number n_{pwm} of sub selection time slots of the row selection time.

(Emphasis added.)

In support of the rejection of claim 1, the reasoning in the Office Action states:

However, **Scheffer et al.** do not teach that the row selection time is subdivided in n_{pwm} sub selection time slots, phase mixing grey scales, and column voltage $G_j(t)$ has always less transition s per row selection than the sub selection time slots.

In the same field of endeavor, **Kobayashi** teaches

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wherein the column voltage $G_j(t)$ to be supplied to a column electrode has always less transitions per row selection time than the number n_{pwm} of sub selection time slots of the row selection time (col. **7**, Ln. **66-68**, Col. **8**, Ln. **1-6**).

Office Action, 1/7/10, page 4 (underlining added).

Thus, the reasoning in the Office Action relies on Kobayashi as purportedly teaching the indicated limitations of the claim. However, Kobayashi does not teach the indicated limitations because Kobayashi is silent with regard to a number of transitions per row selection time. Rather, the cited portion of Kobayashi explicitly states:

If the 6-bit grayscale data is "111111" (grayscale 1), by way of example, the pulse width modulation signal has a transition point within each frame defined by the edge (ED1) of the clock pulse signal GCP determined by the high-order four bits "1111" and the falling edge of the reset signal GRES, and the output is sequentially switched in each frame

through the patterns PWM 1-1, PWM 1-2, PWM 1-3, and PWM 1-4 determined by the low-order two bits "11".

Kobayashi, col. 7, line 66, through col. 8, line 6 (underlining added).

Thus, even though Kobayashi describes a PWM signal with a transition point in each frame, Kobayashi is nevertheless silent regarding a number of transitions per row selection time relative to a number of sub-selection time slots. The generic description of a PWM signal with a transition point in each frame simply does not address the more specific recited language of a number of transitions per row selection time relative to a number of sub-selection time slots. Moreover, there is no explanation in the reasoning of the Office Action to fill in the gaps between the generic teachings of Kobayashi and the more specific language recited in the claim. Therefore, the description in Kobayashi does not teach the indicated language of the claim.

For the reasons presented above, the combination of Scheffer and Kobayashi does not teach all of the limitations of the claim at least because Kobayashi does not teach a number of transitions per row selection time relative to a number of sub-selection time slots, as recited in the claim. Accordingly, Applicants respectfully assert claim 1 is patentable over the combination of Scheffer and Kobayashi because the combination of cited references does not teach all of the limitations of the claim.

Dependent Claims

Claims 2-13 depend from and incorporate all of the limitations of independent claim 1. Applicants respectfully assert claims 2-13 are allowable based on allowable base claims. Additionally, each of claims 2-13 may be allowable for further reasons, as described below.

In regard to claims 6 and 7, Kobayashi does not teach phase mixing tables. Rather, the cited portions of Kobayashi merely describe 6-bit grayscale data read from a RAM 210 (Kobayashi, Fig. 7; col. 9, lines 26-28) and signals for controlling the RAM 80 (Kobayashi, Fig. 4; col. 8, lines 65-67). However, neither of these descriptions teaches phase mixing tables. In particular, the description of the grayscale data within the RAM 210 lacks specificity to conclude that the RAM might store phase mixing tables. Therefore, the asserted combination of Scheffer and Kobayashi does not teach all of the

limitations of the claim at least because Kobayashi does not teach phase mixing tables, as recited in the claims. Accordingly, Applicants respectfully assert claims 6 and 7 are patentable over the combination of Scheffer and Kobayashi because the combination of cited references does not teach all of the limitations of the claims.

CONCLUSION

Applicants respectfully request reconsideration of the claims in view of the remarks made herein. A notice of allowance is earnestly solicited.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account **50-4019** pursuant to 37 C.F.R. 1.25. Additionally, please charge any fees to Deposit Account **50-4019** under 37 C.F.R. 1.16, 1.17, 1.19, 1.20 and 1.21.

Respectfully submitted,

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